UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/620,866	07/15/2003	Stewart Frederick Bryant	50325-0807	9132

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EXAMINER
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ART UNIT	PAPER NUMBER
2616	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

	Application No.	Applicant(s)
Office Action Summary	10/620,866	BRYANT ET AL.
	Examiner	Art Unit
	Anthony Sol	2616

-- *The MAILING DATE of this communication appears on the cover sheet with the correspondence address* --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>15 July 2003</u>.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) <u>1-32</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) <u>1-32</u> is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>15 July 2003</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
   Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2.   Claims 29-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claims 29 and 31,

Beginning on line 6, the phrase, "assigning to an available node a cost equal to minus the cost of reaching the available node from the first node" is indefinite. How can a cost be equal to the minus of another cost? This would suggest a negative cost. There appears to be a missing word(s) after "equal to."

Claim Rejections - 35 USC § 102

3.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4.   Claims 1- 28 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub. No. US 2003/0053414 A1 ("Akahane").

Regarding claims 1, 9, and 10,

Akahane discloses a step performed at a forwarding node (fig. 9, CR3 153) of recognizing a tunneled packet (para. 60, *MPLS* network is a tunneling network) identifying a neighbor node (fig. 9, CR2 152) to the forwarding node as tunnel end point (paras. 57-60, Note that CR3, the forwarding node recognizes via the label distribution protocol as described in para. 9, that CR2 is the end point).

Akahane further discloses removing the header (para. 58, *CR3 removes one front Shim header (L31, E1)*).

Akahane still further discloses forwarding the payload to the neighbor node (para. 58, CR3 transmits P1 to the line 184 to CR2).

Regarding claims 2 and 11,

Akahane discloses a Penultimate Hop Popping (PHP) method in which the CR3 pops the front Shim header of the received P1 packet that is tunneled to the neighbor node CR2 (para. 58). Akahane further discloses label distribution protocol using Label Switch Paths using labels that identify the route taken by the packet (para. 9). Therefore, CR3 records tunnel end points and permission to remove headers.

Regarding claims 3 and 12,

Akahane discloses setting Label Switched Paths manually by a network administrator (para. 9).

Regarding claims 4 and 13,

Akahane discloses Label Switched Paths (LSP) that are set by label distribution protocol (LDP) (para. 9).

Regarding claims 5, 14, 22, and 27,

Akahane shows in fig. 9, setting a Label Switch Paths from CR1 to CR3 to CR2 before utilizing the PHP method using LSP and LDP.

Regarding claims 6 and 15,

Akahane shows in fig. 9, that P1 171 is a direct forwarded packet.

Regarding claims 7 and 16,

Akahane shows in fig. 9 IP/GRE/MPLS/IP payload as indicated by for example labels L12 and L31 (claimed MPLS) in an IP network (paras. 2-4).

Regarding claims 8 and 17,

Akahane shows in fig. 9, encapsulating at node CR1, a packet P1 with headers E1, L12, E1; L31 to tunnel the packet to the end point CR2.

Regarding claim 18,

Akahane shows in fig. 10 one or more processors 1100, 1200, 1300, 1500 and

1700.

Akahane further shows in fig. 10 a network interface 1020 communicatively coupled to the processor and configured to communicate one or more packet flows (fig. 9, packet flow made up of packets such as P1, P2, P3) among the processor and a network (fig. 1, MPLS network).

Akahane further shows in fig. 9 forwarding a tunneled packet having a header E1 and L11 identifying a tunnel end point CR2 152 and a payload P1 171, in a data communications network (fig. 1, MPLS network), which instructions, when executed by one or more processors, cause the one or more processors to perform the steps of the method of any of claims 1, 2, 3, 4, 5, 6, 7 or 8 (see the rejection to claim 1 above).

Regarding claims 19 and 24,

Akahane discloses a step performed at a notifying node (fig. 9, CR2 152) of notifying a forwarding node (fig. 9, CR3 153) of the identity of a tunnel end point (paras. 57-60, Note that CR3, the forwarding node recognizes via the label distribution protocol as described in para. 9, that CR2 is the end point).

Akahane discloses permitting the forwarding node to process tunneled packets to the tunnel end point by removing the header (para. 58, *CR3 removes one front Shim header (L31, E1)*) and forwarding the payload to the tunnel end point (para. 58, CR3 transmits P1 to the line 184 to CR2).

Regarding claims 20 and 25,

Akahane discloses that the Label Switched Paths (LSP) are set by label distribution protocol, or set manually by a network administrator.

Regarding claims 21 and 26,

Akahane shows in fig. 9, that forwarding node CR3 is a neighbor node to the tunnel end point CR2.

Regarding claim 23,

Akahane shows in fig. 9 a forwarding node CR3 153 in a data communications network (fig. 1, MPLS network) to process tunneled packets (fig. 9, e.g. P1) having a header E1 and L11 identifying a tunnel end point CR2 152 and a payload P1, executed by one or more processors 1100, 1200, 1300, 1500, 1700, cause the one or more processors to perform the steps of the method of any of claims 19, 20, 21 or 22 (see the rejection to claim 19 above).

Regarding claim 28,

Akahane shows in fig. 10 one or more processors 1100, 1200, 1300, 1500 and 1700.

Akahane further shows in fig. 10 a network interface 1020 communicatively coupled to the processor and configured to communicate one or more packet flows (fig. 9, packet flow made up of packets such as P1, P2, P3) among the processor and a network (fig. 1, MPLS network).

Akahane further shows in fig. 9 forwarding a tunneled packet having a header E1 and L11 identifying a tunnel end point CR2 152 and a payload P1 171, in a data communications network (fig. 1, MPLS network), which instructions, when executed by one or more processors, cause the one or more processors to perform the steps of the method of any of claims 19, 20, 21, or 22 (see the rejection to claim 19 above).

5.   Claims 29-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Pub. No. US 2005/0152289 A1 ("Nagata") as best understood (see 35 USC § 112 rejection above).

Regarding claims 29, 30, and 31,

Nagata shows in figs. 15, 17C, and 17D computing a spanning tree, rooted at the first node A, of available nodes B, C, D which excludes nodes reachable by traversing a component (link between nodes D and C).

Nagata further shows in fig. 17C assigning to an available node D a cost 30 equal to minus the cost 10 of reaching the available node D from the first node A and re-computing the spanning tree taking into account the assigned cost (fig. 17D shows the re-computed spanning tree)(para. 150).

Regarding claim 32,

Nagata shows in fig. 40, processor 107.

Nagata further shows in fig. 40, a network interface (shown below block 107) communicatively coupled to the processor and configured to communicate one or more packet flows among the processor and a network (shown below block 107).

Nagata shows in figs. 15, 17C, and 17D constructing a backup route from a first node A in a data communications network having as components nodes B, C, and D and links, around a component (link between nodes D and C), and one or more processors perform the steps of the method of claim 29 (see the rejection to claim 29 above).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Sanderson (US2004/0223497A1) teaches network with converged services.

Lewis (US2004/0004955A1) teaches automatically establishing a return label switched path.

Ho (US2002/0136223A1) teaches interworking PNNI with the signalling and routing protocols used in MPLS networks.

Forslow (US6973057B1) teaches public mobile data communication network that is aware of current point of attachment.

Ananda (US2004/0107287A1) teaches transporting Ipv4 data packets across Ipv6 backbone.

Ahmed (US6765896B10 teaches address option for use in an internet protocol-based multimedia mobile network.
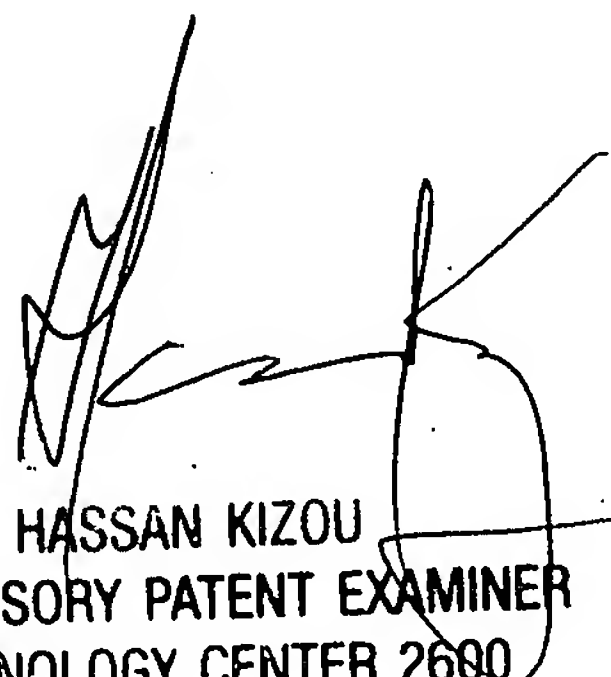
Shah (US2004/0088389A1) teaches automated edge device configuration in a heterogeneous network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anthony Sol whose telephone number is (571) 272-5949. The examiner can normally be reached on M-F 7:30am - 4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

HASSAN KIZOU
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TECHNOLOGY CENTER 2600

AMS

5/22/2007